

Summary

Conservation Status

Distribution

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River Redhorse

Unique Identifier: AFCJC10040

Informal Taxonomy: Animals, Vertebrates - Fishes

- Bony Fishes - Suckers



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Kingdom	Phylum	Class	Order	Family	Genus
Animalia	Craniata	Actinopterygii	Cypriniformes	Catostomidae	Moxostoma

Genus Size: C - Small genus (6-20 species)**Concept Reference:** Robins, C. R., et al. 1991. Common and scientific names of fishes from the United States and Canada. American Fisheries Society, Special Publishing 20. 183 pp.**Concept Reference Code:** B91ROB01NAUS**Name Used in Concept Reference:** *Moxostoma carinatum***Taxonomic Comments:** Formerly placed in monotypic genus PLACOPHARYNX (Lee et al. 1980).

Harris and Mayden (2001) used molecular data to examine phylogenetic relationships of major clades of Catostomidae. In all trees, SCARTOMYZON was paraphyletic and embedded in MOXOSTOMA, and CATOSTOMUS was never recovered as monophyletic (XYRAUCHEN was embedded within CATOSTOMUS). They concluded that the phylogenetic relationships and taxonomic composition of taxa presently included in MOXOSTOMA and SCARTOMYZON are in need of further study, as are the relationships and composition of the genera CATOSTOMUS, CHASMISTES, DELTISTES, and XYRAUCHEN, and the phylogenetic affinities of ERIMYZON and MINYTREMA.

See also Smith (1992) for a study of the phylogeny and biogeography of the Catostomidae.

Conservation Status**NatureServe Status****Global Status:** G4**Global Status Last Reviewed:** 26Apr1996**Global Status Last Changed:** 26Apr1996**Rounded Global Status:** G4**Reasons:**

Discontinuous distribution in the eastern half of the U.S. and a small part of southern Canada; uncommon to rare; has declined greatly from historic times; large river habitat makes protection difficult; vulnerable to major pollution events (such as toxic spills).

Nation: United States**National Status:**

N4

Nation: Canada**National Status:**

N2

U.S. & Canada State/Province Status

United States	Alabama (S4), Arkansas (S4), Florida (S1S2), Georgia (S2), Illinois (S2), Indiana (S3), Iowa (SNR), Kansas (S1S2), Kentucky (S4), Louisiana (S1S3), Michigan (S1), Minnesota (SNR), Mississippi (S3), Missouri (SNR), New York (S2?), North Carolina (S2), Ohio (S3), Oklahoma (S1S2), Pennsylvania (S3), South Carolina (S1), Tennessee (S4), Virginia (S2S3), West Virginia (S3), Wisconsin (S2S3)
Canada	Ontario (S2), Quebec (S2)

Other Statuses

Committee on the Status of Endangered Wildlife in Canada (COSEWIC): Special Concern (01Jan1987)

NatureServe Conservation Status Factors

Global Abundance: EH

Global Abundance Comments: No good census figures; usually uncommon or rare, occasionally common in certain areas; declined greatly from past abundance. Given estimate of 250+ occurrences, average population size of 40 individuals would bring abundance to 10,000.

Estimated Number of Element Occurrences: DE

Estimated Number of Element Occurrences Comments: Fourteen states provided EORs or other confirmed records totalling over 250 occurrences.

Global Short Term Trend: DE

Global Short Term Trend Comments: Numbers have diminished in the United States since 1925 (Scott and Crossman 1973). After severe declines in Pennsylvania, during the 1970s and 1980s populations have increased (Barton 1993, pers. comm.). Populations in Ohio are now believed to be stable after declines in the 1940s (Rice 1993, pers. comm.). In Kansas the river redhorse formerly was common; in the last 20 years only one record has been documented (Busby 1993, pers. comm.). Populations are declining in Canada (Parker and McKee 1984).

Global Inventory Needs: A range-wide survey of historical locations with remaining suitable habitat and other potential habitat is needed to better determine the status of this species, and possibly, to detect unknown populations.

Global Protection: B

Global Protection Comments: Although two states reported protected occurrences, this large river species is difficult to fully protect.

Global Protection Needs: Protect habitat from development that causes siltation and toxic pollution. Encourage better enforcement of pollution/effluent controls within watersheds.

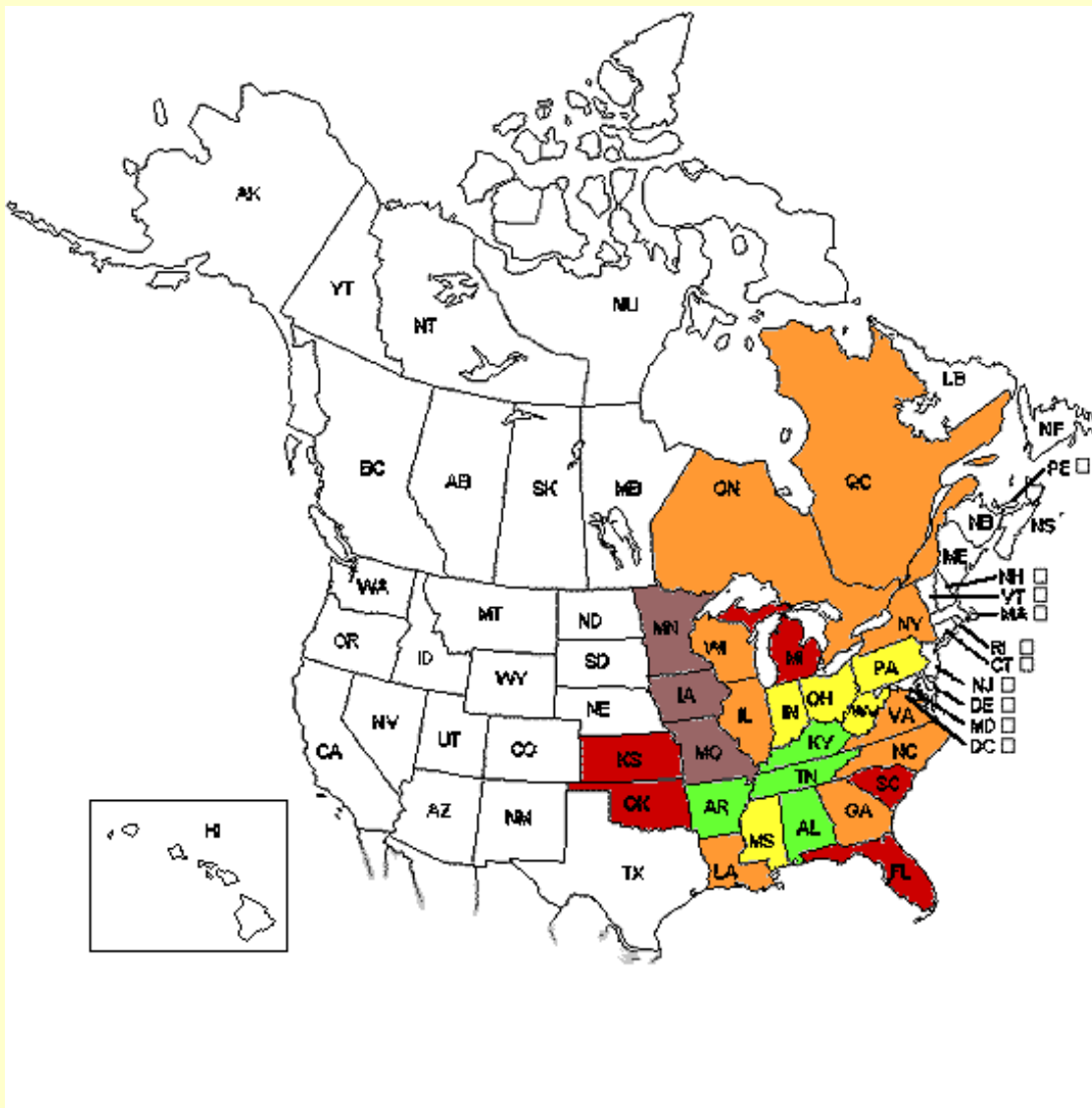
Degree of Threat: B

Threats: Habitat alteration, such as channelization, impoundments, turbidity, siltation, and other forms of pollution are the major threats. These act as limiting factors because the redhorse seems to be inflexible in its habitat requirements and is intolerant of pollution and heavy siltation. Siltation may be the reason the redhorse has such a disjunct distribution (Scott and Crossman 1973). One major reason for the river redhorse's intolerance of turbidity and siltation is that the major food items of this fish require clean gravel-sand stream bottoms and are very susceptible to reduction or extirpation through excessive siltation (Gilbert 1978). Food resources also are sensitive to toxicants. Food resource reductions in turn reduce redhorse populations (Becker 1983). Shooting or gigging of spawners may contribute to local declines (Burkhead and Jenkins 1991). In Oklahoma, the main threats are multiple impoundments in the Illinois River and chicken-farm runoff that enters the river from Arkansas (Vaughn 1993, pers. comm.). In Quebec, this species is declining due to the removal of adults and habitat deterioration (Parker and McKee 1984).

Other Considerations: Spawns in spring on shoals and in runs, in 22-25 C water.

Distribution

U.S. States and Canadian Provinces



State/Province Conservation Status

- SX: Presumed Extirpated
- SH: Possibly Extirpated
- S1: Critically Imperiled
- S2: Imperiled
- S3: Vulnerable
- S4: Apparently Secure
- S5: Secure
- Not Ranked/Under Review

Conservation Status Not Applicable

- Exotic
- Hybrid without Conservation Value

Endemism: occurs (regularly, as a native taxon) in multiple nations

U.S. & Canada State/Province Distribution	
United States	AL, AR, FL, GA, IA, IL, IN, KS, KY, LA, MI, MN, MO, MS, NC, NY, OH, OK, PA, SC, TN, VA, WI, WV
Canada	ON, QC

Range Map


No map available.

Global Range Comments: Discontinuously distributed; eastern Gulf Slope from the Pearl River, Louisiana and Mississippi, to the Escambia River, Florida; widespread in the central Mississippi basin, Oklahoma to Alabama and North Carolina, north to Minnesota and Pennsylvania; several Great Lakes basin records; also Ottawa and St. Lawrence drainages to southern Quebec. Locally common, but now extirpated in much of the northern and western parts of the range.

U.S. Distribution by County (based on available natural heritage records) ?	
State	County Name (FIPS Code)
FL	Escambia (12033), Santa Rosa (12113)

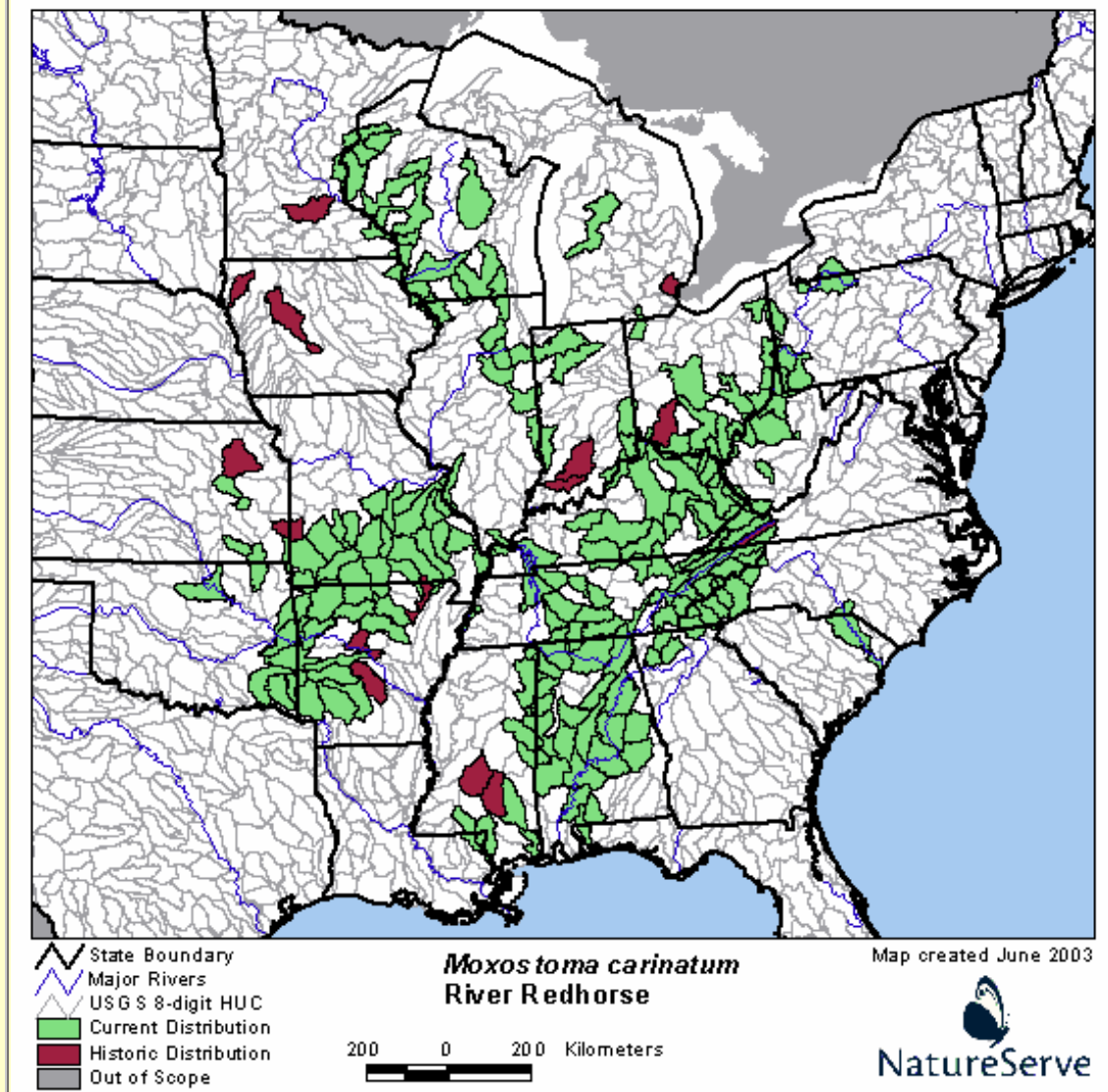
GA	Floyd (13115), Murray (13213), Whitfield (13313)
IL	Franklin (17055), Grundy (17063), Kane (17089), Kankakee (17091), Kendall (17093), La Salle (17099), Livingston (17105), Vermilion (17183), Will (17197)
IN	Elkhart (18039), Tippecanoe (18157)
KS	Cherokee (20021)
LA	St. Tammany (22103), Washington (22117)
MI	Berrien (26021), Iosco (26069), Mecosta (26107), Missaukee (26113), Ottawa (26139), St. Clair (26147), Wayne (26163)
OH	Adams (39001), Ashtabula (39007), Athens (39009), Belmont (39013), Clermont (39025), Coshocton (39031), Fayette (39047), Franklin (39049), Hamilton (39061), Jefferson (39081), Lake (39085), Madison (39097), Meigs (39105), Montgomery (39113), Morgan (39115), Muskingum (39119), Pickaway (39129), Pike (39131), Ross (39141), Sandusky (39143), Scioto (39145), Seneca (39147), Union (39159), Warren (39165), Washington (39167), Wood (39173)
PA	Allegheny (42003), Armstrong (42005), Beaver (42007)
VA	Lee (51105), Russell (51167), Scott (51169), Washington (51191)
WI	Buffalo (55011), Burnett (55013), Crawford (55023), Dodge (55027), Dunn (55033), Eau Claire (55035), Grant (55043), Green (55045), Jackson (55053), Jefferson (55055), Kenosha (55059), La Crosse (55063), Monroe (55081), Pepin (55091), Pierce (55093), Polk (55095), Racine (55101), Shawano (55115), St. Croix (55109), Trempealeau (55121), Waupaca (55135)

U.S. Distribution by Watershed (based on available natural heritage records)

Watershed Region 	Watershed Name (Watershed Code)
03	Escambia (03140305), Conasauga (03150101), Oostanaula (03150103), Etowah (03150104), Lower Pearl. Mississippi (03180004), Bogue Chitto (03180005)
04	Wolf (04030202), St. Joseph (04050001), Lower Grand (04050006), Muskegon (04060102), Au Sable (04070007), Lake St. Clair (04090002), Detroit (04090004)
05	Middle Allegheny-Redbank (05010006), Lower Allegheny (05010009), Upper Ohio (05030101), Tippecanoe (05120106), Vermilion (05120109)
06	South Fork Holston (06010102), Upper Clinch (06010205), Powell (06010206)
07	Upper St. Croix (07030001), Lower St. Croix (07030005), Buffalo-Whitewater (07040003), La Crosse-Pine (07040006), Black (07040007), Lower Chippewa (07050005), Grant-Little Maquoketa (07060003), Lower Wisconsin (07070005), Upper Rock (07090001), Sugar (07090004), Kankakee (07120001), Upper Illinois (07120005), Upper Fox (07120006), Lower Fox (07120007), Vermilion (07130002), Big Muddy (07140106)
11	Spring (11070207)

U.S. Distribution by Watershed (based on multiple information sources)

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Economic Attributes

Management Summary

Biological Research Needs: Obtain better life-history information.

Ecology & Life History

Short General Description: A large fish, 1 to 3 feet long.

Reproduction Comments: Spawns in spring at water temperatures of 18-24 C. In central Alabama, arrives at spawning shoals in mid-April for a one-week breeding period. In Tennessee, spawns generally from mid-April to early May (Stubbs, in Burkhead and Jenkins 1991). In Wisconsin, spawns apparently in mid-May (Becker 1983). Eggs hatch in 3-4 days (Becker 1983). An estimate of maturity at 3 years may be an underestimate (Burkhead and Jenkins 1991). Maximum longevity is 16 years.

Ecology Comments

Has moved 16-24 km upstream in period of 12-22 days (Becker 1983).

Habitat Type: Freshwater

Non-Migrant: Y

Locally Migrant: Y

Long Distance Migrant: N

Mobility and Migration Comments: May make upstream spawning migrations (Becker 1983).

Riverine Habitat(s): CREEK, High gradient, MEDIUM RIVER, Moderate gradient, Pool

Special Habitat Factors: Benthic

Habitat Comments: Generally confined to clearer large creeks and rivers; occasionally in natural lakes and reservoirs (Lee et al. 1980). Adults generally occupy moderate to swift water over clean gravel, boulders, and rubble, or in deep, fast-flowing portions of pools. Small individuals often are in pool shallows and backwaters (Burkhead and Jenkins 1991). Spawns in excavated nest in gravel and gravel-rubble in shoals or large runs (Becker 1983, Lee et al. 1980). Some medium-sized creeks or small rivers are ascended for spawning, but juveniles do not stay long in these smaller waterways (Burkhead and Jenkins 1991). Intolerant of pollution and heavy siltation.

Adult Food Habits: Invertivore

Immature Food Habits: Invertivore

Food Comments: Eats mainly mussels, snails, crustaceans, and immature aquatic insects obtained from the bottom.

Length: 60 centimeters

Population/Occurrence Delineation

Group Name: SMALL SUCKERS

Use Class: Not applicable

Minimum Criteria for an Occurrence: Occurrences are based on evidence of historical presence, or current and likely recurring presence, at a given location. Such evidence minimally includes collection or reliable observation and documentation of one or more individuals (including eggs and larvae) in appropriate habitat.

Mapping Guidance: It is important to evaluate migrations and seasonal changes in habitat to ensure that spawning areas and nonspawning areas for a single population are not artificially segregated as different occurrences simply because there have been no collections/observations in an intervening area that may exceed the separation distance.

Separation Barriers: Dam lacking a suitable fishway; high waterfall; upland habitat.

Separation Distance for Unsuitable Habitat: 10 km

Separation Distance for Suitable Habitat: 10 km

Separation Justification: Data on dispersal and other movements generally are not available. In some species, individuals may migrate variable distances between spawning areas and nonspawning habitats.

Separation distances (in aquatic kilometers) for catostomids are arbitrary but reflect the presumption that movements and appropriate separation distances generally should increase with fish size. Hence small, medium, and large catostomids, respectively, have increasingly large separation distances. Separation distance reflects the likely low probability that two occupied locations separated by less than several kilometers of aquatic habitat would represent truly independent populations over the long term.

Because of the difficulty in defining suitable versus unsuitable habitat, especially with respect to dispersal, and to simplify the delineation of occurrences, a single separation distance is used regardless of habitat quality.

Occupied locations that are separated by a gap of 10 km or more of any aquatic habitat that is not known to be occupied represent different occurrences. However, it is important to evaluate seasonal changes in habitat to ensure that an occupied habitat occurrence for a particular population does not artificially separate spawning areas and nonspawning

areas as different occurrences simply because there have been no collections/observations in an intervening area that may exceed the separation distance.

Date: 21Sep2004

Author: Hammerson, G.

Notes: This Specs Group includes catostomids that typically are less than 20 cm in adult standard length.

Population/Occurrence Viability

Authors/Contributors

NatureServe Conservation Status Factors Edition Date: 26Apr1996

NatureServe Conservation Status Factors Author: Jennings, R., J. Soule, and G. Hammerson

Element Ecology & Life History Edition Date: 26Apr1996

Element Ecology & Life History Author(s): Hammerson, G.

Zoological data developed by NatureServe and its network of natural heritage programs (see [Local Programs](#)) and other contributors and cooperators (see [Sources](#)).

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Ridgely, R.S., T.F. Allnutt, T. Brooks, D.K. McNicol, D.W. Mehlman, B.E. Young, and J.R. Zook. 2003. Digital Distribution Maps of the Birds of the Western Hemisphere, version 1.0. NatureServe, Arlington, Virginia, USA.

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Citation for Mammal Range Maps of North America:

Patterson, B.D., G. Ceballos, W. Sechrest, M.F. Tognelli, T. Brooks, L. Luna, P. Ortega, I. Salazar, and B. E. Young. 2003. Digital Distribution Maps of the Mammals of the Western Hemisphere, version 1.0. NatureServe, Arlington, Virginia, USA.

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